

Remarks

Claims 1, 3-11, 13-21, and 23-30 were pending in the subject application. By this Amendment, claims 1, 4-11, 14-15, 17-21, 24-25, and 27-30 have been amended, and claims 31-54 have been added. The undersigned avers that no new matter has been introduced by these amendments. Accordingly, claims 1, 3-11, 13-21, and 23-54 are currently before the Examiner for his consideration. Favorable consideration of the claims now presented, in view of the remarks and amendments set forth herein, is earnestly solicited.

The amendments to the claims have been made in an effort to lend greater clarity to the claimed subject matter and to expedite prosecution. Therefore, these amendments should not be taken to indicate the applicants' agreement with, or acquiescence to, the rejections of record.

New claims 31-35 incorporate limitations similar to limitations deleted from claim 1.

New claims 39-43 incorporate limitations similar to limitations deleted from claim 11.

New claims 47-51 incorporate limitations similar to limitations deleted from claim 21.

Support for new claims 36, 44, and 52 can be found, at least at [0022].

Support for new claims 37, 45, and 53 can be found, at least at [0023].

Support for new claims 38, 46, and 54 can be found, at least at [0041].

Claims 1, 11, and 21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Bayya *et al.* (U.S. Patent No. 6,446,038) in view of Rex *et al.* (GB 0112439.5, 05/22/2001) in view of Treurniet *et al.* (U.S. Patent No. 7,164,771). The applicants respectfully traverse this grounds for rejection as a *prima facie* case of obviousness has not been presented. Three criteria must be met to establish *prima facie* case of obviousness. First, the prior art reference, or combination of references, must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Finally, there must be a reasonable expectation of success. Applicants respectfully traverse the rejection since the cited reference does not teach or suggest all the claim limitations, the cited reference does not provide any suggestion or motivation to modify the Bayya *et al.* reference to arrive at the subject invention as claimed in claims 1, 11, and 21, and there is no reasonable expectation of success of such a modification.

In particular, Claims 1, 11, and 21 each incorporate the limitations of "processing a voice

signal using an auditory model to produce a processed voice signal, identifying one or more voice quality attributes of said voice signal by analyzing said processed voice signal, and comparing said one or more voice quality attributes of said voice signal with one or more baseline vocal quality attributes in order to determine at least one measure of the voice signal”. At page 5, the Office Action concedes neither Bayya nor Res use an auditory model, but assert that it would have been obvious to modify Bayya to include this feature for the purpose of better estimating how the signal will be perceived. The applicant asserts there would have been no motivation for Bayya *et al.* to process a voice signal using an auditory model as Bayya is interested in measuring how speech is corrupted in a communication system.

Further, Bayya *et al.* does not teach “identifying one or more voice quality attributes of said voice signal by analyzing said processed voice signal, and comparing said one or more voice quality attributes of said voice signal with one or more baseline vocal quality attributes in order to determine at least one measure of the voice signal”. Rather, Bayya *et al.* “determines an amount of distortion present in the corrupted speech signal according to a plurality of distortion measures based on the set of speech reference vectors **16** (see col. 3, lines 17-23 and Figure 1). In this way, Bayya compares the corrupted speech to speech reference vectors, where the reference vectors are obtained from a large number of clean speech samples (see col. 2, lines 57-58), in order to determine distortion in the corrupted speech signal caused by the communication system. As taught at col. 3, lines 21-23, the output of the comparison of the corrupted speech signal to the reference vector in Bayya is a corresponding signal **18** representing the amount of distortion in the corrupted speech signal.

This is very different from the claimed invention of claims 1, 11, and 21, where the voice signal being diagnosed need not have passed through a communication system, (although the voice signal may have), but can be any voice signal. Further, with respect to the claimed embodiments of claims 1, 11, and 21, the voice signal is not compared to reference vectors as in Bayya *et al.*, but is processed using an auditory model and then the processed voice signal is analyzed to identify one or more voice quality attributes. The one or more voice quality attributes are then compared to one or more baseline vocal quality attributes in order to determine at least one measure of vocal quality of the voice signal.

On page 5, 1<sup>st</sup> paragraph, of the Office Action, in regard to the limitation “comparing ... in

order to determine at least one objective measure of vocal quality of the voice signal” the Office Action refers to “the speech reference vectors **16** are obtained from a large number of clean speech samples”. However, the embodiments of the subject invention as claimed in claims 1, 11, and 21, involve “identifying one or more voice quality attributes prior to comparing the one or more voice quality attributes with the one or more baseline vocal quality attributes”. In Bayya, the reference vectors are compared with a corrupted speech signal to get the corresponding signals **18** representing the distortion in the corrupted speech signal. The measured distortion signals **18** are then “processed by the neural network **22**” (see col. 5, lines 28-34) to “determine the quality of the speech”. Accordingly, “quality of the speech” as used in Bayya is quite different than “voice quality” as used in claims 1, 11, and 21. Applicant respectfully asserts that Bayya fails to disclose each of the above-described features and teaches away from their use.

Accordingly, applicants assert there is no suggestion or motivation to modify the teachings of the Bayya *et al.* reference, or to combine the teachings of the Bayya *et al.* reference and the Rex *et al.* and Treurniet *et al.* references, to arrive at the subject invention as claimed in claims 1, 11, and 21, and that there is no reasonable expectation of success of such a modification or combination. Therefore, a *prima facie* case of obviousness has not been presented. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 11, and 21 under 35 USC §103(a) is respectfully requested.

Claims 3-5, 13-15, and 23-25 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Bayya *et al.* (U.S. Patent No. 6,446,038) in view of Rex *et al.* (GB 0112439.5, 05/22/2001) in view of Treurniet *et al.* (U.S. Patent No. 7,164,771), and in further view of Deal, *et al.* (“Some Waveform and Spectral Features of Vowel Roughness”). The applicant respectfully traverses these grounds for rejection. The limitations of the Bayya *et al.*, Rex *et al.*, and Treurniet *et al.* references with respect to the rejection of claims 1, 11, and 21 have been discussed above, and the Deal *et al.* reference does not cure such defects. The applicant submits that the Bayya *et al.*, Rex *et al.*, Treurniet *et al.* and Deal *et al.* references, alone or in combination, do not teach or suggest the subject invention as claimed in claims 3-5, 13-15, and 23-25. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection of claims 3-5, 13-15, and 23-25 under 35 U.S.C. §103(a).

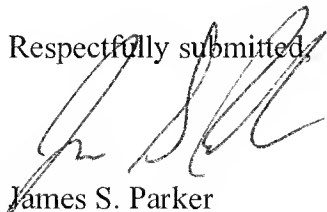
Claims 6-10, 116-20, and 26-30 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Bayya *et al.* (U.S. Patent No. 6,446,038) in view of Rex *et al.* (GB 0112439.5, 05/22/2001) in view of Treurniet *et al.* (U.S. Patent No. 7,164,771), and in further view of Hillenbrand *et al.* ("Acoustic Correlates of Breathly Vocal Quality). The applicant respectfully traverses these grounds for rejection. The limitations of the Bayya *et al.*, Rex *et al.*, and Treurniet *et al.* references with respect to the rejection of claims 1, 11, and 21 have been discussed above, and the Hillenbrand *et al.* reference does not cure such defects. The applicant submits that the Bayya *et al.*, Rex *et al.*, Treurniet *et al.* and Hillenbrand *et al.* references, alone or in combination, do not teach or suggest the subject invention as claimed in claims 6-10, 116-20, and 26-30. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection of claims 6-10, 116-20, and 26-30 under 35 U.S.C. §103(a).

In view of the foregoing remarks and amendments to the claims, applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The applicants also invite the Examiner to call the undersigned if clarification is needed on any of this response.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 or 1.17 as required by this paper to Deposit Account 19-0065.

Respectfully submitted,



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